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Published to advance the Science of cold-blooded vertebrates

A NOTE ON THE PEZ AGUJON.

In reading Mr. Nichols' note in COPEIA No. 51 on the "Leaping of a Hemiramphid," many instances were called to mind where I had watched such a performance. I have observed rushing needlefish in the shoal waters of the West Indies on something over a dozen excursions. I have never seen them more often than among the Cays off the south coast of Cuba. Here at nightfall almost every day, or about sunset perhaps, the sea becomes as smooth as glass, and the hounds or billfish then may often be seen or heard slithering away as they are apparently chased by predaceous fishes. Sometimes they skull along with their tails more or less continually in the water, and their bodies tilted at an angle of perhaps forty degrees with the surface. Again, they drive themselves clear into the air, and dart along for perhaps two or three or four yards, when they touch the water again with their tails for fresh impetus. The entire aerial journey which these curious creatures make is often a good 200 yards and perhaps more.

Once, near Cabo Cruz, I was coasting along in a small open boat with but a breath of air stirring, as in the early evening the land breezes had scarce begun to blow. Here the billfish were skipping about in every direction, and a lantern, which I held for a moment over the side to look at some passing jelly-

fish, and for which I used my hat as a reflector, had the globe smashed almost instantly by a billfish which rushed it from a very considerable distance. I had this happen once afterwards when the beak of the billfish, or, as the Cubans call him, the "Pez Agu-jon," broke off in the soft wood of the combing. I was not surprised by what I found, for I had always supposed the beak had belonged to a *Belone* or *Tylosurus* and *not* to a *Hemiramph*. Never once have I seen a half-beak leave the water in this characteristic way, and for that reason have been interested in Mr. Nichols' observation.

He speaks of the relationship of his needlefish with the flying fishes, which is significant, and it seems to me that the most interesting point is that there is perhaps this tremendous difference between the habits of these two families of bill or needlefishes, both of which are very near to the real flyers, taxonomically. *Belone*, more vigorous, more strongly muscled, and more powerfully built, rushes regularly above the surface in this characteristic manner, while the *Hemiramphs*, although characteristically feeding at the surface, shy and active as they are, in my experience, never attempt to leave the water to escape their foes. I have often discussed this with my dear old friend, Professor Carlos de la Torre of Havana, and he agrees with the observation, although I do not know that I have ever actually pressed him for an answer as to whether he had ever seen *Hemiramphs* leave the water or not. We have certainly never seen this when we were together.

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THE ADULT OF RAJA MONTEREYENSIS GILBERT.

In the proceedings of the U. S. National Museum, (Vol. 48, 1915, p. 307), Dr. Gilbert described